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## Update “With-Site-Visit” Reserve Study



## American Towers Assoc. Common Salt Lake City, Utah

**Report #: 515-9C**  
**For Period Beginning: May 1, 2010**  
**Ending: April 30, 2011**  
**Date Prepared: January 19, 2010**  
**Revised Date: March 13, 2010**

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## **Hello, and welcome to your Reserve Study!**

**T**his Report is a valuable budget planning tool, for with it you control the future of your association. It contains all the fundamental information needed to understand your current and future Reserve obligations, the most significant expenditures your association will face.

**W**ith respect to Reserves, this Report will tell you “where you are”, and “where to go from here”.

**In this Report, you will find...**

- 1) A List of What you’re Reserving For**
- 2) An Evaluation of your Reserve Fund Size and Strength**
- 3) A Recommended Multi-Year Reserve Funding Plan**

### **More Questions?**

Visit our website at [www.ReserveStudy.com](http://www.ReserveStudy.com) or call us at:

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## 3- Minute Executive Summary

**Association:** American Towers Assoc. Common    **Assoc. #:** 515-9C  
**Location:** Salt Lake City, Utah  
**# of Units:** 357  
**Report Period:** May 1, 2010 through April 30, 2011

**Results**

<b>Projected Starting Reserve Balance:</b> .....	<b>\$295,000</b>
<b>Fully Funded Reserve Balance:</b> .....	<b>\$735,045</b>
<b>Average Reserve Deficit (Surplus) Per Unit:</b> .....	<b>\$1,233</b>
<b>Percent Funded:</b> .....	<b>40.1%</b>
<b>Recommended 2010 monthly Reserve Contribution:</b> .....	<b>\$14,610</b>
<b>Recommended Special Assessment this year:</b> .....	<b>\$0</b>
<b>Most Recent Reserve Contribution Rate:</b> .....	<b>\$10,703</b>

**Economic Assumptions:**

**Net Annual "After Tax" Interest Earnings Accruing to Reserves.....** 2.00%  
**Annual Inflation Rate .....** 3.00%

- This is an "Update With-Site-Visit" Reserve Study, based on a prior Report prepared by Association Reserves for your 2006 Fiscal Year. The information in this Reserve Study is based on our site inspection on December 11, 2009.
- This Reserve Study was prepared by, or under the supervision of, a credentialed Reserve Specialist (RS).
- Because your Reserve Fund is above 30%, at 40.1% Funded, this represents a mid-range position. In perspective, associations in the 70% funded and above are less likely to experience large increase to dues and special assessments. Your multi-year Funding Plan is designed to gradually bring you to the 100% level, or "Fully Funded".
- Based on this starting point, your anticipated future expenses, and your historical Reserve contribution rate, our recommendation is to increase your Reserve contributions with a nominal annual increase to counter act inflation.

#	Component	Useful Life (yrs)	Rem. Useful Life (yrs)	Current Average Cost	Future Average Cost
305	Closed Circuit TV - Replace	10	8	\$23,500	\$29,769
306	Air Handler VFD - Replace	20	15	\$4,000	\$6,232
309	Chilled Water Pumps & VFD - Replace	15	10	\$20,000	\$26,878
309	Chillers North/South - Replace	25	20	\$325,000	\$586,986
310	Boilers - Refurbish	3	1	\$12,500	\$12,875
310	Culinary Boilers - Replace	15	15	\$85,000	\$132,427
311	Cooling Tower - Refurbish	10	5	\$45,000	\$52,167
311	Cooling Tower - Replace	25	20	\$185,000	\$334,131
312	Pumps & Valves - Replace (part)	1	0	\$12,500	\$12,875
315	Heat Exchanger (tube) - Replace	20	9	\$15,000	\$19,572
316	HVAC Alerton Contr System - Replace	15	10	\$62,500	\$83,995
316	HVAC Alerton Contr System - Update	7	2	\$7,500	\$7,957
320	Cold Wtr Pumping Station - Replace	20	20	\$65,000	\$117,397
320	Hot Water Pumping Station - Replace	20	20	\$65,000	\$117,397
710	Access Control System - Replace	7	3	\$21,000	\$22,947
911	Office - Refurbish	10	5	\$18,000	\$20,867
915	Office Telephones - Update	7	3	\$8,000	\$8,742
1119	Building Exterior - Seal	15	7	\$500,000	\$614,937
1126	EIFS Exterior - Seal/Repair	10	0	\$9,000	\$12,095
1303	Shingle Roof - Replace	25	0	\$45,000	\$94,220
1307	Center Membrane Roof - Replace	15	5	\$70,200	\$81,381
1307	North Membrane Roof - Replace	20	15	\$84,000	\$130,869
1307	South Membrane Roof - Replace	20	4	\$84,000	\$94,543
1803	Fire Alarm System - Replace	15	10	\$110,000	\$147,831
1840	Mechanical Contingency	1	0	\$25,000	\$25,750
25	Total Funded Components				

Note: a Useful Life of "N/A" means a one-time expense, not expected to repeat.

## Introduction

A Reserve Study is the art and science of anticipating, and preparing for, an association's major common area repair and replacement expenses. Partially art, because in this field we are making projections about the future. Partially science, because our work is a process of research and analysis along well defined methodologies.

In this Report you will find the Reserve Component List (what you are reserving for). It contains our estimates for Useful Life, Remaining Useful Life, and the current repair or replacement cost for each major component the association is obligated to maintain. Based on that List and your starting balance we computed the association's Reserve Fund Strength (measured as "Percent Funded"), and created a recommended multi-year Reserve Funding Plan to offset future Reserve expenses.

As the physical assets age and deteriorate, it is important to accumulate financial assets to keep the two "in balance". A stable Reserve Funding Plan that offsets the irregular Reserve expenses will ensure that each owner pays their own "fair share" of ongoing common area deterioration.

## Methodology

First we establish what the projected expenses are, then we determine the association's financial status and create a Funding Plan. For this "Update With-Site-Visit" Reserve Study, we started with a review of your prior Reserve Study, recent Reserve expenditures, an evaluation of how expenditures are handled (ongoing maintenance vs. Reserves), and research into any well-established association precedents. We performed an on-site inspection to evaluate your common areas, updating and adjusting your Reserve Component List as appropriate.

### Reserve Study

- Component List
- Reserve Fund Strength
- Recommended Contribs

### Reserve Study Types

- Full
- • Update With-Site-Visit
- Update No-Site-Visit

### *Which Physical Assets are Covered by Reserves?*

There is a national-standard four-part test to determine which expenses should be funded through Reserves. First, it must be a common area maintenance responsibility. Second, the component must have a limited life. Third, the limited life must be predictable (or it by definition is a “surprise” which cannot be accurately anticipated). Fourth, the component must be above a minimum threshold cost. This limits Reserve

#### **Reserve Components**

- Common Area
- Limited Useful Life
- Predictable Life Limit
- Cost must be Significant

Components to major, predictable expenses. Within this framework, it is inappropriate to include “lifetime” components, unpredictable expenses (such as damage due to fire, flood, or earthquake), and expenses more appropriately handled from the Operational Budget or as an insured loss.

### *How are Useful Life and Remaining Useful Life established?*

- 1) Visual Inspection (observed wear and age since last report)
- 2) Association Reserves database of experience
- 3) Client Component History
- 4) Vendor Evaluation and Recommendation

### *How are Cost Estimates Established?*

Financial projections are based on the average of our Best Case and Worst Case estimates, which are established in this order...

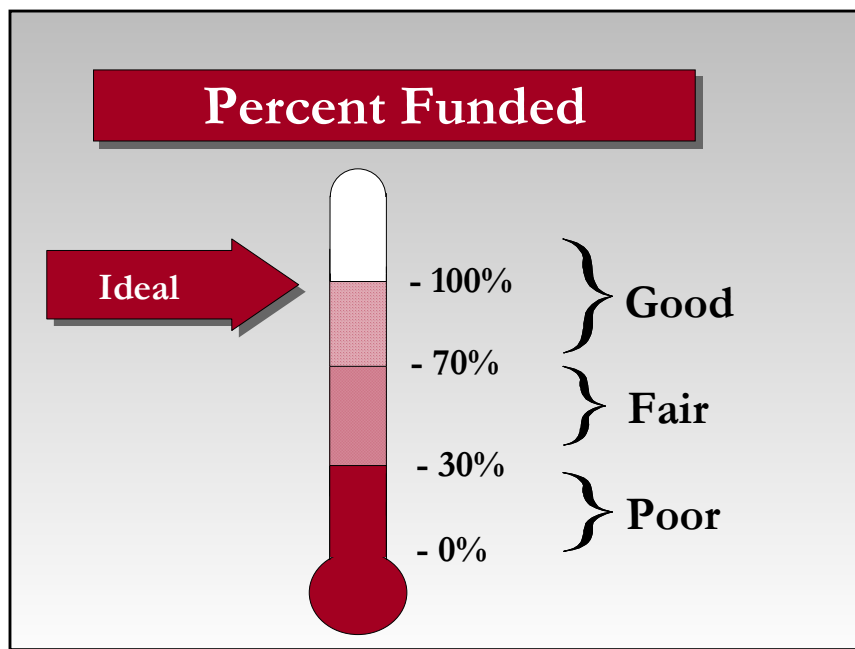
- 1) Client Cost History
- 2) Comparison to Association Reserves database of work done at similar associations
- 3) Vendor Recommendations
- 4) Reliable National Industry cost estimating guidebooks

### *How much Reserves are enough?*

Your Reserve cash Balance can measure reserves, but the true measure is whether the funds are adequate. Adequacy is measured in a two-step process:

- 1) Calculate the association's Fully Funded Balance (FFB).
- 2) Compare to the Reserve Fund Balance, and express as a percentage.

The FFB grows as assets age and the Reserve needs of the association increase, but shrinks when projects are accomplished and the Reserve needs of the association decrease. The Fully Funded Balance changes each year, and is a moving but predictable target.



Special assessments and deferred maintenance are common when the Percent Funded is below 30%. While the 100% point is Ideal, a Reserve Fund in the 70% -130% range is considered "strong" because in this range cash flow problems are rare.

Measuring your Reserves by Percent Funded tells how well prepared your association is for upcoming Reserve expenses. New buyers should be very aware of this important disclosure!



*How much should we contribute?*

There are four Funding Principles that we balance in developing your Reserve Funding Plan. Our first objective is to design a plan that provides you with sufficient cash to perform your Reserve projects on time. A stable contribution rate is desirable because it is a hallmark of a proactive plan.

Reserve contributions that are evenly distributed over the owners, over the years, enable each owner to pay their “fair share” of the association’s Reserve expenses (this means we recommend special assessments only when all other options have been exhausted). And finally, we develop a plan that is fiscally responsible and “safe” for Board members to recommend to their association.

**Funding Principles**

- Sufficient Cash
- Stable Contribution Rate
- Evenly Distributed
- Fiscally Responsible

*What is our Recommended Funding Goal?*

Maintaining the Reserve Fund at a level equal to the physical deterioration that has occurred is called “Full Funding” the Reserves (100% Funded). As each asset ages and becomes “used up”, the Reserve Fund grows proportionally. **This is simple, responsible, and our recommendation.** As stated previously, associations in the 100% range rarely experience special assessments or deferred maintenance.

Allowing the Reserves to fall close to zero, but not below zero, is called Baseline Funding. In these associations, deterioration occurs without matching Reserve contributions. With a low Percent Funded, special assessments and deferred maintenance are common.

Threshold Funding is the title of all other objectives randomly selected between Baseline Funding and Full Funding.

**Funding Goals**

- Full Funding
- Threshold Funding
- Baseline Funding

## **Site Inspection Notes**

During our site visit on December 11, 2009, we started the meeting with Joe Toronto - Manger, and then started the site inspection beginning with the Interior buildings. We also met with Billy Cruz – Maintenance Supervisor. We visually inspected all the buildings, and were able to see all areas. We were not able to inspect the asphalt roof closely, however as reported, this component was replaced in 2009.

As reported, all mechanical equipment is inspected monthly, with readings taken daily. Large mechanical equipment is also serviced and maintained by outside contractors on a yearly basis. The property appears well maintained in appearance and in overall condition.

### Projected Expenses

The figure below shows the array of the projected future expenses at your association. This figure clearly shows the near term and future expenses that your association will face. Note the two large expenses in approximately 2030 and 2032, made up primarily of mechanical and exterior sealing expenses.

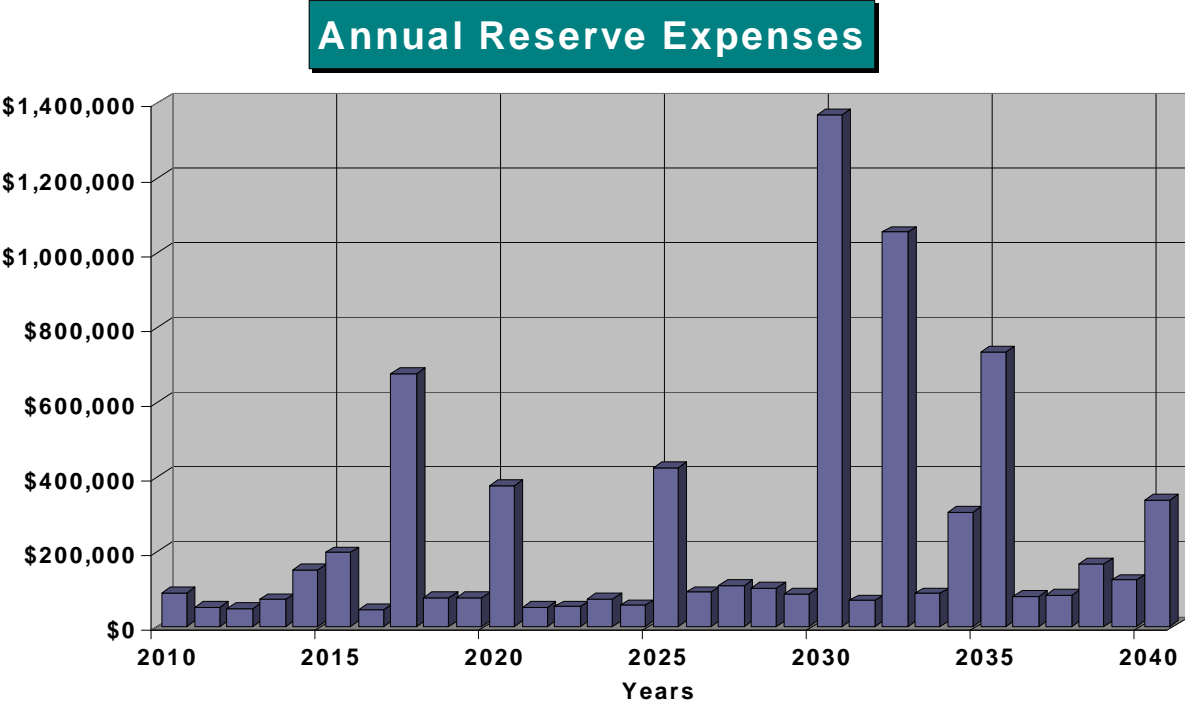


Figure 1

A summary of this information is shown in Table 4, while details of the projects that make up this information are shown in Table 5. Since this is a projection about future events that may or may not take place as anticipated, we feel more certain about “near-term” projects than those many years away. While this Reserve Study is a one-year document, it is based on 30 years worth of looking forward into the future.

### Reserve Fund Status

The starting point for our financial analysis is your Reserve Fund balance, projected to be \$295,000 as-of the start of your Fiscal Year on May 1, 2010. This is based on your actual balance on 9/09 of \$395,497.88 and anticipated Reserve contributions and expenses projected through the end of your Fiscal Year. As of May 1, 2010, your Fully Funded Balance is computed to be \$735,045 (see Table 3). This figure represents the deteriorated value of your common area components. Comparing your Reserve Balance to your Fully Funded Balance indicates your Reserves are 40% Funded. As indicated earlier in the Executive Summary, this represents a mid-range status.

### Recommended Funding Plan

Based on your current Percent Funded and your projected cash flow requirements, we are recommending Reserve contributions of \$14,610/month this Fiscal Year. This represents the first year of the 30-year Funding Plan shown below. This same information is shown numerically in both Table 4 and Table 5.

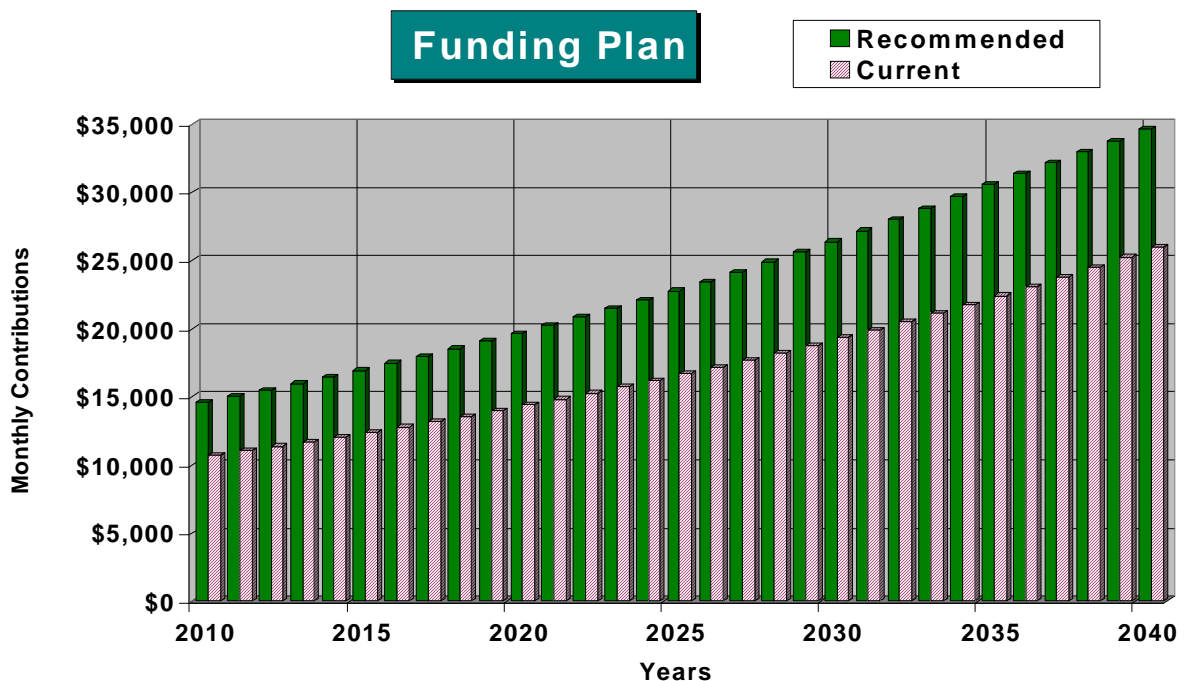


Figure 2

The following chart shows your Reserve balance under our recommended Funding Plan and your current Funding Plan, and your always-changing Fully Funded Balance target.

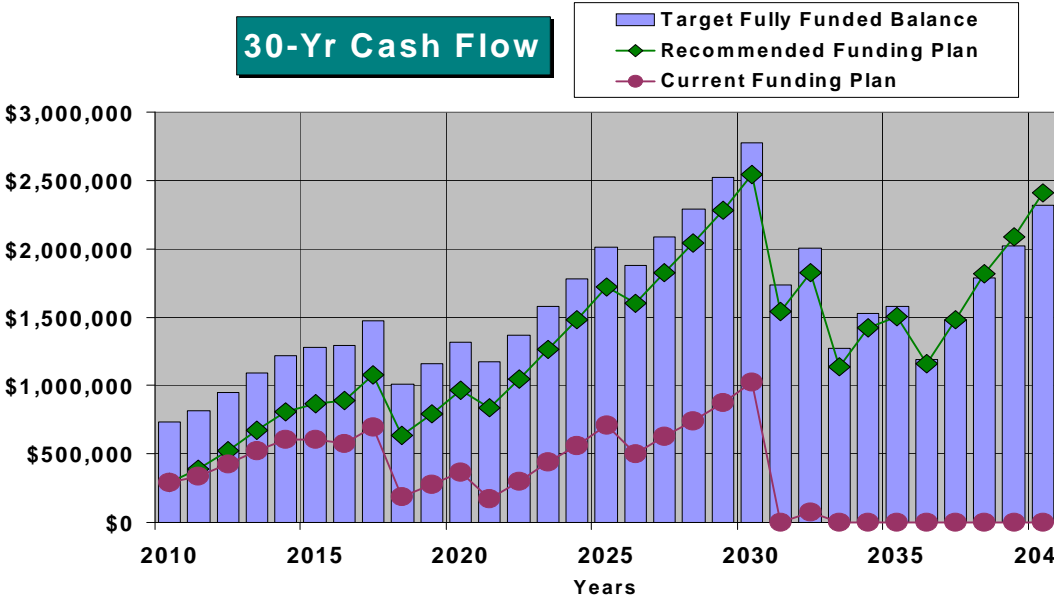


Figure 3

In this figure it is easy to see how your Reserve Fund gradually draws closer to the Fully Funded (100%) level.

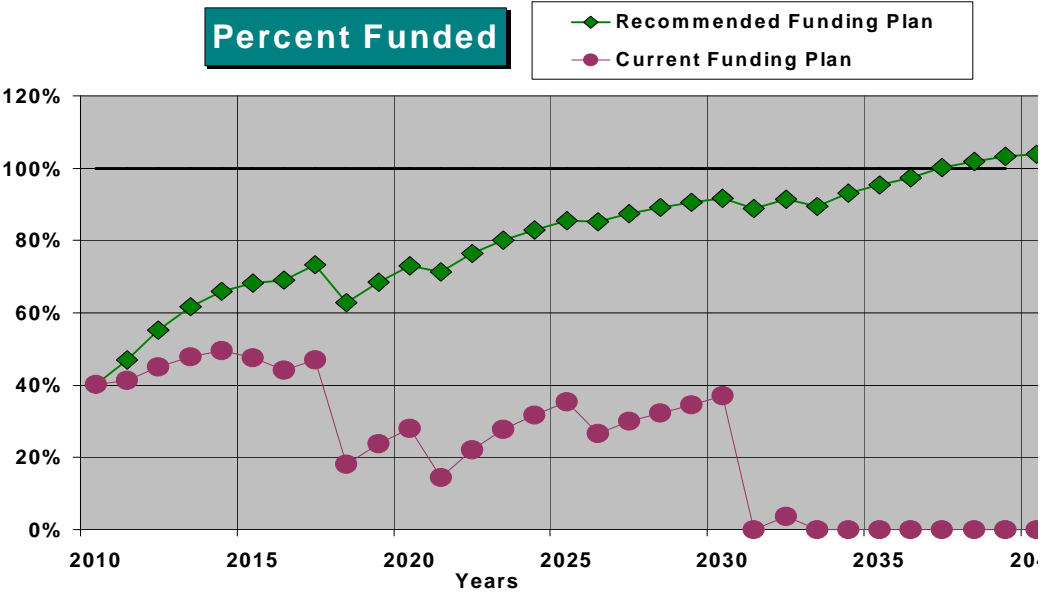


Figure 4

## Table Descriptions

The tabular information in this Report is broken down into five tables.

Table 1 summarizes your funded Reserve Components, and is part of the Executive Report summary that appeared earlier in this Report.

Table 2 provides the main component description, life, and cost factors for all components determined to be appropriate for Reserve designation. This table represents the core information from which all other tables are derived.

Table 3 is presented primarily as an accounting summary page. The results of the individual line item Fully Funded Balance computations are shown. These individual quantities are summed to arrive at the Fully Funded Balance for the association as of the start date of the Report. The figures in the Current Fund Balance column and the Monthly Reserve Contribution column show our distribution throughout the line items. If the association is underfunded, Reserve Funds are distributed first to components with a short Remaining Useful Life. If the association's Reserve Balance is above 100% Funded, funds are distributed evenly for all components. Contribution rates for each component are a proportionate distribution of the total contribution on the basis of the component's significance to the association (current cost divided by useful life). This presentation is not meant to cause clients to redistribute association funds, it simply presents one way to evenly distribute the total among all the different line items.

Table 4: This table provides a one-page 30-year summary of the cash flowing into and out of the association, compared to the Fully Funded Balance for each year.

Table 5: This table shows the cash flow detail for the next 30 years. This table makes it possible to see what components are projected to require repair or replacement each year, and the size of those individual expenses.

**Table 2: Reserve Component List Detail****515-9C**

#	Component	Quantity	Use	Rem.	Best	Current
			ful	Usef	Cost	Worst
			Life	ul		Cost
				Life		
305	Closed Circuit TV - Replace	Security System	10	8	\$20,000	\$27,000
306	Air Handler VFD - Replace	(2) VFD	20	15	\$3,000	\$5,000
309	Chilled Water Pumps & VFD - Replace	Numerous Pumps/Controller	15	10	\$15,000	\$25,000
309	Chillers North/South - Replace	(2) Carrier 350 Ton	25	20	\$300,000	\$350,000
310	Boilers - Refurbish	(2) ThermoPak 5.5MBTU	3	1	\$10,000	\$15,000
310	Culinary Boilers - Replace	(2) Thermopak 1.98MBTU	15	15	\$80,000	\$90,000
311	Cooling Tower - Refurbish	(1) BAC Cooling Tower	10	5	\$35,000	\$55,000
311	Cooling Tower - Replace	(1) BAC Cooling Tower	25	20	\$170,000	\$200,000
312	Pumps & Valves - Replace (part)	Numerous pumps and valves	1	0	\$10,000	\$15,000
315	Heat Exchanger (tube) - Replace	(4) B&G Tube Bundles	20	9	\$12,000	\$18,000
316	HVAC Alerton Contr System - Replace	(1) HVAC Control System	15	10	\$50,000	\$75,000
316	HVAC Alerton Contr System - Update	(1) HVAC Control System	7	2	\$5,000	\$10,000
320	Cold Wtr Pumping Station - Replace	(3) Domestic Motors/Pumps	20	20	\$60,000	\$70,000
320	Hot Water Pumping Station - Replace	(3) Domestic Motors/Pumps	20	20	\$60,000	\$70,000
710	Access Control System - Replace	(1) Key Card System	7	3	\$15,000	\$27,000
911	Office - Refurbish	(2) Offices	10	5	\$15,000	\$21,000
915	Office Telephones - Update	(1) Office Phone System	7	3	\$6,000	\$10,000
1119	Building Exterior - Seal	Approx 110,000 Sq Ft	15	7	\$450,000	\$550,000
1126	EIFS Exterior - Seal/Repair	Minimal Total GSF	10	0	\$8,000	\$10,000
1303	Shingle Roof - Replace	Approx 2500 Sq Ft	25	0	\$40,000	\$50,000
1307	Center Membrane Roof - Replace	Approx 7,800 Sq Ft	15	5	\$62,400	\$78,000
1307	North Membrane Roof - Replace	Approx 6,000 GSF	20	15	\$72,000	\$96,000
1307	South Membrane Roof - Replace	Approx 6,000 GSF	20	4	\$72,000	\$96,000
1803	Fire Alarm System - Replace	(1) Central System	15	10	\$100,000	\$120,000
1840	Mechanical Contingency	Various Equipment	1	0	\$20,000	\$30,000
25	Total Funded Components					

**Table 3: Contribution and Fund Breakdown****515-9C**

#	Component	Useful Life	Rem. Useful Life	Current (Avg) Cost	Fully Funded Balance	Current Fund Balance	Reserve Contributions
305	Closed Circuit TV - Replace	10	8	\$23,500	\$4,700	\$0.00	\$247.31
306	Air Handler VFD - Replace	20	15	\$4,000	\$1,000	\$0.00	\$21.05
309	Chilled Water Pumps & VFD - Replace	15	10	\$20,000	\$6,667	\$0.00	\$140.32
309	Chillers North/South - Replace	25	20	\$325,000	\$65,000	\$0.00	\$1,368.10
310	Boilers - Refurbish	3	1	\$12,500	\$8,333	\$8,333.33	\$438.49
310	Culinary Boilers - Replace	15	15	\$85,000	\$0	\$0.00	\$0.00
311	Cooling Tower - Refurbish	10	5	\$45,000	\$22,500	\$22,500.00	\$473.57
311	Cooling Tower - Replace	25	20	\$185,000	\$37,000	\$0.00	\$778.76
312	Pumps & Valves - Replace (part)	1	0	\$12,500	\$12,500	\$12,500.00	\$1,315.48
315	Heat Exchanger (tube) - Replace	20	9	\$15,000	\$8,250	\$0.00	\$78.93
316	HVAC Alerton Contr System - Replace	15	10	\$62,500	\$20,833	\$0.00	\$438.49
316	HVAC Alerton Contr System - Update	7	2	\$7,500	\$5,357	\$5,357.14	\$112.76
320	Cold Wtr Pumping Station - Replace	20	20	\$65,000	\$0	\$0.00	\$0.00
320	Hot Water Pumping Station - Replace	20	20	\$65,000	\$0	\$0.00	\$0.00
710	Access Control System - Replace	7	3	\$21,000	\$12,000	\$12,000.00	\$315.72
911	Office - Refurbish	10	5	\$18,000	\$9,000	\$9,000.00	\$189.43
915	Office Telephones - Update	7	3	\$8,000	\$4,571	\$4,571.43	\$120.27
1119	Building Exterior - Seal	15	7	\$500,000	\$266,667	\$27,738.10	\$3,507.95
1126	EIFS Exterior - Seal/Repair	10	0	\$9,000	\$9,000	\$9,000.00	\$94.71
1303	Shingle Roof - Replace	25	0	\$45,000	\$45,000	\$45,000.00	\$189.43
1307	Center Membrane Roof - Replace	15	5	\$70,200	\$46,800	\$46,800.00	\$492.52
1307	North Membrane Roof - Replace	20	15	\$84,000	\$21,000	\$0.00	\$442.00
1307	South Membrane Roof - Replace	20	4	\$84,000	\$67,200	\$67,200.00	\$442.00
1803	Fire Alarm System - Replace	15	10	\$110,000	\$36,667	\$0.00	\$771.75
1840	Mechanical Contingency	1	0	\$25,000	\$25,000	\$25,000.00	\$2,630.96
25	Total Funded Components				\$735,045	\$295,000	\$14,610



**Table 4: 30-Year Reserve Plan Summary**

**515-9C**

Fiscal Year Beginning: 05/01/10

<b>Interest:</b>	<b>2.0%</b>	<b>Inflation:</b>	<b>3.0%</b>
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Year	Starting Reserve Balance	Fully Funded Balance	Percent Funded	Rating	Annual Reserve Contribs.	Loans or Special Assmts	Interest Income	Projected Reserve Expenses
2010	\$295,000	\$735,045	40.1%	Fair	\$175,320	\$0	\$6,800	\$91,500
2011	\$385,620	\$818,376	47.1%	Fair	\$180,580	\$0	\$9,086	\$51,500
2012	\$523,786	\$950,072	55.1%	Fair	\$185,997	\$0	\$11,968	\$47,741
2013	\$674,010	\$1,094,397	61.6%	Fair	\$191,577	\$0	\$14,805	\$72,666
2014	\$807,725	\$1,222,328	66.1%	Fair	\$197,324	\$0	\$16,773	\$150,818
2015	\$871,004	\$1,278,699	68.1%	Fair	\$203,244	\$0	\$17,635	\$197,888
2016	\$893,995	\$1,293,530	69.1%	Fair	\$209,341	\$0	\$19,706	\$44,777
2017	\$1,078,264	\$1,471,919	73.3%	Strong	\$215,621	\$0	\$17,114	\$676,431
2018	\$634,569	\$1,010,629	62.8%	Fair	\$222,090	\$0	\$14,270	\$77,273
2019	\$793,656	\$1,158,370	68.5%	Fair	\$228,753	\$0	\$17,538	\$78,286
2020	\$961,660	\$1,315,409	73.1%	Strong	\$235,615	\$0	\$17,984	\$376,969
2021	\$838,291	\$1,175,605	71.3%	Strong	\$242,684	\$0	\$18,846	\$51,909
2022	\$1,047,912	\$1,372,689	76.3%	Strong	\$249,964	\$0	\$23,135	\$53,466
2023	\$1,267,545	\$1,580,540	80.2%	Strong	\$257,463	\$0	\$27,442	\$73,427
2024	\$1,479,023	\$1,780,719	83.1%	Strong	\$265,187	\$0	\$31,957	\$56,722
2025	\$1,719,445	\$2,010,961	85.5%	Strong	\$273,143	\$0	\$33,162	\$426,104
2026	\$1,599,646	\$1,874,704	85.3%	Strong	\$281,337	\$0	\$34,196	\$92,271
2027	\$1,822,909	\$2,085,477	87.4%	Strong	\$289,777	\$0	\$38,609	\$109,914
2028	\$2,041,381	\$2,291,888	89.1%	Strong	\$298,471	\$0	\$43,168	\$103,848
2029	\$2,279,171	\$2,518,450	90.5%	Strong	\$307,425	\$0	\$48,221	\$87,675
2030	\$2,547,142	\$2,776,410	91.7%	Strong	\$316,647	\$0	\$40,815	\$1,366,684
2031	\$1,537,920	\$1,732,911	88.7%	Strong	\$326,147	\$0	\$33,629	\$69,761
2032	\$1,827,936	\$2,002,365	91.3%	Strong	\$335,931	\$0	\$29,650	\$1,053,857
2033	\$1,139,660	\$1,274,964	89.4%	Strong	\$346,009	\$0	\$25,599	\$88,811
2034	\$1,422,457	\$1,528,678	93.1%	Strong	\$356,389	\$0	\$29,221	\$305,936
2035	\$1,502,132	\$1,575,573	95.3%	Strong	\$367,081	\$0	\$26,618	\$733,869
2036	\$1,161,961	\$1,192,588	97.4%	Strong	\$376,258	\$0	\$26,435	\$80,872
2037	\$1,483,782	\$1,480,469	100.2%	Strong	\$385,665	\$0	\$33,001	\$83,298
2038	\$1,819,149	\$1,784,550	101.9%	Strong	\$395,306	\$0	\$39,011	\$168,163
2039	\$2,085,303	\$2,020,707	103.2%	Strong	\$405,189	\$0	\$44,931	\$123,720

**Table 5: 30-Year Income/Expense Detail (yrs 0 through 4)****515-9C**

Fiscal Year	2010	2011	2012	2013	2014
Starting Reserve Balance	\$295,000	\$385,620	\$523,786	\$674,010	\$807,725
Annual Reserve Contribution	\$175,320	\$180,580	\$185,997	\$191,577	\$197,324
Planned Special Assessments	\$0	\$0	\$0	\$0	\$0
Interest Earnings	\$6,800	\$9,086	\$11,968	\$14,805	\$16,773
<b>Total Income</b>	<b>\$477,120</b>	<b>\$575,286</b>	<b>\$721,751</b>	<b>\$880,392</b>	<b>\$1,021,822</b>
<b># Component</b>					
305 Closed Circuit TV - Replace	\$0	\$0	\$0	\$0	\$0
306 Air Handler VFD - Replace	\$0	\$0	\$0	\$0	\$0
309 Chilled Water Pumps & VFD - Replace	\$0	\$0	\$0	\$0	\$0
309 Chillers North/South - Replace	\$0	\$0	\$0	\$0	\$0
310 Boilers - Refurbish	\$0	\$12,875	\$0	\$0	\$14,069
310 Culinary Boilers - Replace	\$0	\$0	\$0	\$0	\$0
311 Cooling Tower - Refurbish	\$0	\$0	\$0	\$0	\$0
311 Cooling Tower - Replace	\$0	\$0	\$0	\$0	\$0
312 Pumps & Valves - Replace (part)	\$12,500	\$12,875	\$13,261	\$13,659	\$14,069
315 Heat Exchanger (tube) - Replace	\$0	\$0	\$0	\$0	\$0
316 HVAC Alerton Contr System - Replace	\$0	\$0	\$0	\$0	\$0
316 HVAC Alerton Contr System - Update	\$0	\$0	\$7,957	\$0	\$0
320 Cold Wtr Pumping Station - Replace	\$0	\$0	\$0	\$0	\$0
320 Hot Water Pumping Station - Replace	\$0	\$0	\$0	\$0	\$0
710 Access Control System - Replace	\$0	\$0	\$0	\$22,947	\$0
911 Office - Refurbish	\$0	\$0	\$0	\$0	\$0
915 Office Telephones - Update	\$0	\$0	\$0	\$8,742	\$0
1119 Building Exterior - Seal	\$0	\$0	\$0	\$0	\$0
1126 EIFS Exterior - Seal/Repair	\$9,000	\$0	\$0	\$0	\$0
1303 Shingle Roof - Replace	\$45,000	\$0	\$0	\$0	\$0
1307 Center Membrane Roof - Replace	\$0	\$0	\$0	\$0	\$0
1307 North Membrane Roof - Replace	\$0	\$0	\$0	\$0	\$0
1307 South Membrane Roof - Replace	\$0	\$0	\$0	\$0	\$94,543
1803 Fire Alarm System - Replace	\$0	\$0	\$0	\$0	\$0
1840 Mechanical Contingency	\$25,000	\$25,750	\$26,523	\$27,318	\$28,138
<b>Total Expenses</b>	<b>\$91,500</b>	<b>\$51,500</b>	<b>\$47,741</b>	<b>\$72,666</b>	<b>\$150,818</b>
<b>Ending Reserve Balance:</b>	<b>\$385,620</b>	<b>\$523,786</b>	<b>\$674,010</b>	<b>\$807,725</b>	<b>\$871,004</b>

**Table 5: 30-Year Income/Expense Detail (yrs 5 through 9)****515-9C**

Fiscal Year	2015	2016	2017	2018	2019
Starting Reserve Balance	\$871,004	\$893,995	\$1,078,264	\$634,569	\$793,656
Annual Reserve Contribution	\$203,244	\$209,341	\$215,621	\$222,090	\$228,753
Planned Special Assessments	\$0	\$0	\$0	\$0	\$0
Interest Earnings	\$17,635	\$19,706	\$17,114	\$14,270	\$17,538
<b>Total Income</b>	<b>\$1,091,883</b>	<b>\$1,123,041</b>	<b>\$1,310,999</b>	<b>\$870,929</b>	<b>\$1,039,947</b>
<b># Component</b>					
305 Closed Circuit TV - Replace	\$0	\$0	\$0	\$29,769	\$0
306 Air Handler VFD - Replace	\$0	\$0	\$0	\$0	\$0
309 Chilled Water Pumps & VFD - Replace	\$0	\$0	\$0	\$0	\$0
309 Chillers North/South - Replace	\$0	\$0	\$0	\$0	\$0
310 Boilers - Refurbish	\$0	\$0	\$15,373	\$0	\$0
310 Culinary Boilers - Replace	\$0	\$0	\$0	\$0	\$0
311 Cooling Tower - Refurbish	\$52,167	\$0	\$0	\$0	\$0
311 Cooling Tower - Replace	\$0	\$0	\$0	\$0	\$0
312 Pumps & Valves - Replace (part)	\$14,491	\$14,926	\$15,373	\$15,835	\$16,310
315 Heat Exchanger (tube) - Replace	\$0	\$0	\$0	\$0	\$19,572
316 HVAC Alerton Contr System - Replace	\$0	\$0	\$0	\$0	\$0
316 HVAC Alerton Contr System - Update	\$0	\$0	\$0	\$0	\$9,786
320 Cold Wtr Pumping Station - Replace	\$0	\$0	\$0	\$0	\$0
320 Hot Water Pumping Station - Replace	\$0	\$0	\$0	\$0	\$0
710 Access Control System - Replace	\$0	\$0	\$0	\$0	\$0
911 Office - Refurbish	\$20,867	\$0	\$0	\$0	\$0
915 Office Telephones - Update	\$0	\$0	\$0	\$0	\$0
1119 Building Exterior - Seal	\$0	\$0	\$614,937	\$0	\$0
1126 EIFS Exterior - Seal/Repair	\$0	\$0	\$0	\$0	\$0
1303 Shingle Roof - Replace	\$0	\$0	\$0	\$0	\$0
1307 Center Membrane Roof - Replace	\$81,381	\$0	\$0	\$0	\$0
1307 North Membrane Roof - Replace	\$0	\$0	\$0	\$0	\$0
1307 South Membrane Roof - Replace	\$0	\$0	\$0	\$0	\$0
1803 Fire Alarm System - Replace	\$0	\$0	\$0	\$0	\$0
1840 Mechanical Contingency	\$28,982	\$29,851	\$30,747	\$31,669	\$32,619
<b>Total Expenses</b>	<b>\$197,888</b>	<b>\$44,777</b>	<b>\$676,431</b>	<b>\$77,273</b>	<b>\$78,286</b>
Ending Reserve Balance:	\$893,995	\$1,078,264	\$634,569	\$793,656	\$961,660

**Table 5: 30-Year Income/Expense Detail (yrs 10 through 14)****515-9C**

Fiscal Year	2020	2021	2022	2023	2024
Starting Reserve Balance	\$961,660	\$838,291	\$1,047,912	\$1,267,545	\$1,479,023
Annual Reserve Contribution	\$235,615	\$242,684	\$249,964	\$257,463	\$265,187
Planned Special Assessments	\$0	\$0	\$0	\$0	\$0
Interest Earnings	\$17,984	\$18,846	\$23,135	\$27,442	\$31,957
<b>Total Income</b>	<b>\$1,215,260</b>	<b>\$1,099,821</b>	<b>\$1,321,011</b>	<b>\$1,552,450</b>	<b>\$1,776,168</b>
# Component					
305 Closed Circuit TV - Replace	\$0	\$0	\$0	\$0	\$0
306 Air Handler VFD - Replace	\$0	\$0	\$0	\$0	\$0
309 Chilled Water Pumps & VFD - Replace	\$26,878	\$0	\$0	\$0	\$0
309 Chillers North/South - Replace	\$0	\$0	\$0	\$0	\$0
310 Boilers - Refurbish	\$16,799	\$0	\$0	\$18,357	\$0
310 Culinary Boilers - Replace	\$0	\$0	\$0	\$0	\$0
311 Cooling Tower - Refurbish	\$0	\$0	\$0	\$0	\$0
311 Cooling Tower - Replace	\$0	\$0	\$0	\$0	\$0
312 Pumps & Valves - Replace (part)	\$16,799	\$17,303	\$17,822	\$18,357	\$18,907
315 Heat Exchanger (tube) - Replace	\$0	\$0	\$0	\$0	\$0
316 HVAC Alerton Contr System - Replace	\$83,995	\$0	\$0	\$0	\$0
316 HVAC Alerton Contr System - Update	\$0	\$0	\$0	\$0	\$0
320 Cold Wtr Pumping Station - Replace	\$0	\$0	\$0	\$0	\$0
320 Hot Water Pumping Station - Replace	\$0	\$0	\$0	\$0	\$0
710 Access Control System - Replace	\$28,222	\$0	\$0	\$0	\$0
911 Office - Refurbish	\$0	\$0	\$0	\$0	\$0
915 Office Telephones - Update	\$10,751	\$0	\$0	\$0	\$0
1119 Building Exterior - Seal	\$0	\$0	\$0	\$0	\$0
1126 EIFS Exterior - Seal/Repair	\$12,095	\$0	\$0	\$0	\$0
1303 Shingle Roof - Replace	\$0	\$0	\$0	\$0	\$0
1307 Center Membrane Roof - Replace	\$0	\$0	\$0	\$0	\$0
1307 North Membrane Roof - Replace	\$0	\$0	\$0	\$0	\$0
1307 South Membrane Roof - Replace	\$0	\$0	\$0	\$0	\$0
1803 Fire Alarm System - Replace	\$147,831	\$0	\$0	\$0	\$0
1840 Mechanical Contingency	\$33,598	\$34,606	\$35,644	\$36,713	\$37,815
<b>Total Expenses</b>	<b>\$376,969</b>	<b>\$51,909</b>	<b>\$53,466</b>	<b>\$73,427</b>	<b>\$56,722</b>
Ending Reserve Balance:	\$838,291	\$1,047,912	\$1,267,545	\$1,479,023	\$1,719,445

**Table 5: 30-Year Income/Expense Detail (yrs 15 through 19)****515-9C**

Fiscal Year	2025	2026	2027	2028	2029
Starting Reserve Balance	\$1,719,445	\$1,599,646	\$1,822,909	\$2,041,381	\$2,279,171
Annual Reserve Contribution	\$273,143	\$281,337	\$289,777	\$298,471	\$307,425
Planned Special Assessments	\$0	\$0	\$0	\$0	\$0
Interest Earnings	\$33,162	\$34,196	\$38,609	\$43,168	\$48,221
<b>Total Income</b>	<b>\$2,025,750</b>	<b>\$1,915,179</b>	<b>\$2,151,295</b>	<b>\$2,383,020</b>	<b>\$2,634,817</b>
# Component					
305 Closed Circuit TV - Replace	\$0	\$0	\$0	\$40,007	\$0
306 Air Handler VFD - Replace	\$6,232	\$0	\$0	\$0	\$0
309 Chilled Water Pumps & VFD - Replace	\$0	\$0	\$0	\$0	\$0
309 Chillers North/South - Replace	\$0	\$0	\$0	\$0	\$0
310 Boilers - Refurbish	\$0	\$20,059	\$0	\$0	\$21,919
310 Culinary Boilers - Replace	\$132,427	\$0	\$0	\$0	\$0
311 Cooling Tower - Refurbish	\$70,109	\$0	\$0	\$0	\$0
311 Cooling Tower - Replace	\$0	\$0	\$0	\$0	\$0
312 Pumps & Valves - Replace (part)	\$19,475	\$20,059	\$20,661	\$21,280	\$21,919
315 Heat Exchanger (tube) - Replace	\$0	\$0	\$0	\$0	\$0
316 HVAC Alerton Contr System - Replace	\$0	\$0	\$0	\$0	\$0
316 HVAC Alerton Contr System - Update	\$0	\$12,035	\$0	\$0	\$0
320 Cold Wtr Pumping Station - Replace	\$0	\$0	\$0	\$0	\$0
320 Hot Water Pumping Station - Replace	\$0	\$0	\$0	\$0	\$0
710 Access Control System - Replace	\$0	\$0	\$34,710	\$0	\$0
911 Office - Refurbish	\$28,043	\$0	\$0	\$0	\$0
915 Office Telephones - Update	\$0	\$0	\$13,223	\$0	\$0
1119 Building Exterior - Seal	\$0	\$0	\$0	\$0	\$0
1126 EIFS Exterior - Seal/Repair	\$0	\$0	\$0	\$0	\$0
1303 Shingle Roof - Replace	\$0	\$0	\$0	\$0	\$0
1307 Center Membrane Roof - Replace	\$0	\$0	\$0	\$0	\$0
1307 North Membrane Roof - Replace	\$130,869	\$0	\$0	\$0	\$0
1307 South Membrane Roof - Replace	\$0	\$0	\$0	\$0	\$0
1803 Fire Alarm System - Replace	\$0	\$0	\$0	\$0	\$0
1840 Mechanical Contingency	\$38,949	\$40,118	\$41,321	\$42,561	\$43,838
<b>Total Expenses</b>	<b>\$426,104</b>	<b>\$92,271</b>	<b>\$109,914</b>	<b>\$103,848</b>	<b>\$87,675</b>
Ending Reserve Balance:	\$1,599,646	\$1,822,909	\$2,041,381	\$2,279,171	\$2,547,142

**Table 5: 30-Year Income/Expense Detail (yrs 20 through 24)****515-9C**

Fiscal Year	2030	2031	2032	2033	2034
Starting Reserve Balance	\$2,547,142	\$1,537,920	\$1,827,936	\$1,139,660	\$1,422,457
Annual Reserve Contribution	\$316,647	\$326,147	\$335,931	\$346,009	\$356,389
Planned Special Assessments	\$0	\$0	\$0	\$0	\$0
Interest Earnings	\$40,815	\$33,629	\$29,650	\$25,599	\$29,221
<b>Total Income</b>	<b>\$2,904,605</b>	<b>\$1,897,697</b>	<b>\$2,193,517</b>	<b>\$1,511,268</b>	<b>\$1,808,067</b>
# Component					
305 Closed Circuit TV - Replace	\$0	\$0	\$0	\$0	\$0
306 Air Handler VFD - Replace	\$0	\$0	\$0	\$0	\$0
309 Chilled Water Pumps & VFD - Replace	\$0	\$0	\$0	\$0	\$0
309 Chillers North/South - Replace	\$586,986	\$0	\$0	\$0	\$0
310 Boilers - Refurbish	\$0	\$0	\$23,951	\$0	\$0
310 Culinary Boilers - Replace	\$0	\$0	\$0	\$0	\$0
311 Cooling Tower - Refurbish	\$0	\$0	\$0	\$0	\$0
311 Cooling Tower - Replace	\$334,131	\$0	\$0	\$0	\$0
312 Pumps & Valves - Replace (part)	\$22,576	\$23,254	\$23,951	\$24,670	\$25,410
315 Heat Exchanger (tube) - Replace	\$0	\$0	\$0	\$0	\$0
316 HVAC Alerton Contr System - Replace	\$0	\$0	\$0	\$0	\$0
316 HVAC Alerton Contr System - Update	\$0	\$0	\$0	\$14,802	\$0
320 Cold Wtr Pumping Station - Replace	\$117,397	\$0	\$0	\$0	\$0
320 Hot Water Pumping Station - Replace	\$117,397	\$0	\$0	\$0	\$0
710 Access Control System - Replace	\$0	\$0	\$0	\$0	\$42,689
911 Office - Refurbish	\$0	\$0	\$0	\$0	\$0
915 Office Telephones - Update	\$0	\$0	\$0	\$0	\$16,262
1119 Building Exterior - Seal	\$0	\$0	\$958,052	\$0	\$0
1126 EIFS Exterior - Seal/Repair	\$16,255	\$0	\$0	\$0	\$0
1303 Shingle Roof - Replace	\$0	\$0	\$0	\$0	\$0
1307 Center Membrane Roof - Replace	\$126,789	\$0	\$0	\$0	\$0
1307 North Membrane Roof - Replace	\$0	\$0	\$0	\$0	\$0
1307 South Membrane Roof - Replace	\$0	\$0	\$0	\$0	\$170,755
1803 Fire Alarm System - Replace	\$0	\$0	\$0	\$0	\$0
1840 Mechanical Contingency	\$45,153	\$46,507	\$47,903	\$49,340	\$50,820
<b>Total Expenses</b>	<b>\$1,366,684</b>	<b>\$69,761</b>	<b>\$1,053,857</b>	<b>\$88,811</b>	<b>\$305,936</b>
Ending Reserve Balance:	\$1,537,920	\$1,827,936	\$1,139,660	\$1,422,457	\$1,502,132

**Table 5: 30-Year Income/Expense Detail (yrs 25 through 29)****515-9C**

Fiscal Year	2035	2036	2037	2038	2039
Starting Reserve Balance	\$1,502,132	\$1,161,961	\$1,483,782	\$1,819,149	\$2,085,303
Annual Reserve Contribution	\$367,081	\$376,258	\$385,665	\$395,306	\$405,189
Planned Special Assessments	\$0	\$0	\$0	\$0	\$0
Interest Earnings	\$26,618	\$26,435	\$33,001	\$39,011	\$44,931
<b>Total Income</b>	<b>\$1,895,831</b>	<b>\$1,564,654</b>	<b>\$1,902,447</b>	<b>\$2,253,466</b>	<b>\$2,535,423</b>
# Component					
305 Closed Circuit TV - Replace	\$0	\$0	\$0	\$53,766	\$0
306 Air Handler VFD - Replace	\$0	\$0	\$0	\$0	\$0
309 Chilled Water Pumps & VFD - Replace	\$41,876	\$0	\$0	\$0	\$0
309 Chillers North/South - Replace	\$0	\$0	\$0	\$0	\$0
310 Boilers - Refurbish	\$26,172	\$0	\$0	\$28,599	\$0
310 Culinary Boilers - Replace	\$0	\$0	\$0	\$0	\$0
311 Cooling Tower - Refurbish	\$94,220	\$0	\$0	\$0	\$0
311 Cooling Tower - Replace	\$0	\$0	\$0	\$0	\$0
312 Pumps & Valves - Replace (part)	\$26,172	\$26,957	\$27,766	\$28,599	\$29,457
315 Heat Exchanger (tube) - Replace	\$0	\$0	\$0	\$0	\$35,348
316 HVAC Alerton Contr System - Replace	\$130,861	\$0	\$0	\$0	\$0
316 HVAC Alerton Contr System - Update	\$0	\$0	\$0	\$0	\$0
320 Cold Wtr Pumping Station - Replace	\$0	\$0	\$0	\$0	\$0
320 Hot Water Pumping Station - Replace	\$0	\$0	\$0	\$0	\$0
710 Access Control System - Replace	\$0	\$0	\$0	\$0	\$0
911 Office - Refurbish	\$37,688	\$0	\$0	\$0	\$0
915 Office Telephones - Update	\$0	\$0	\$0	\$0	\$0
1119 Building Exterior - Seal	\$0	\$0	\$0	\$0	\$0
1126 EIFS Exterior - Seal/Repair	\$0	\$0	\$0	\$0	\$0
1303 Shingle Roof - Replace	\$94,220	\$0	\$0	\$0	\$0
1307 Center Membrane Roof - Replace	\$0	\$0	\$0	\$0	\$0
1307 North Membrane Roof - Replace	\$0	\$0	\$0	\$0	\$0
1307 South Membrane Roof - Replace	\$0	\$0	\$0	\$0	\$0
1803 Fire Alarm System - Replace	\$230,316	\$0	\$0	\$0	\$0
1840 Mechanical Contingency	\$52,344	\$53,915	\$55,532	\$57,198	\$58,914
<b>Total Expenses</b>	<b>\$733,869</b>	<b>\$80,872</b>	<b>\$83,298</b>	<b>\$168,163</b>	<b>\$123,720</b>
Ending Reserve Balance:	\$1,161,961	\$1,483,782	\$1,819,149	\$2,085,303	\$2,411,704

## Accuracy, Limitations, and Disclosures

Because we have no control over future events, we cannot claim that all the events we anticipate will occur as planned. We expect that inflationary trends will continue, and we expect that financial institutions will provide interest earnings on funds on-deposit. We believe that reasonable estimates for these figures are much more accurate than ignoring these economic realities. The things we can control are measurements, which we attempt to establish within 5% accuracy. Your starting Reserve Balance and current Reserve interest earnings are also numbers that can be identified with a high degree of certainty. These figures have been provided to us, and were not confirmed by our independent research. Our projections assume a stable economic environment and lack of natural disasters.

Because both the physical status and financial status of the association change each year, this Reserve Study is by nature a “one-year” document. This information can and should be adjusted annually as part of the Reserve Study Update process so that more accurate estimates can be reflected in the Reserve plan. Reality often differs from even the best assumptions due to changing economic factors, physical factors, or ownership expectations. Because many years of financial preparation help the preparation for large expenses, this Report shows expenses for the next 30 years. We fully expect a number of adjustments will be necessary through the interim years to both the cost and timing of distant expense projections. It is our recommendation and that of the American Institute of Certified Public Accountants (AICPA) that your Reserve Study be updated annually.

Association Reserves - Colorado, and its employees have no ownership, management, or other business relationships with the client other than this Reserve Study engagement. Robert M. Nordlund, P.E., R.S., company president, is a California licensed Professional Engineer (Mechanical, #22322), and credentialed Reserve Specialist (#5). All work done by Association Reserves is performed under his Responsible Charge. There are no material issues to our knowledge that have not been disclosed to the client that would cause a distortion of the association’s situation.

We have relied upon the client to provide the current (or projected) Reserve Balance, the estimated net-after-tax current rate of interest earnings, and to indicate if those earnings accrue to the Reserve Fund. In addition, we have considered the association’s representation of current and historical Reserve projects reliable, and we have considered the representations made by its vendors and suppliers to also be accurate and reliable.

Component quantities indicated in this Report were developed by Association Reserves unless otherwise noted in our “Site Inspection Notes” comments. No destructive or intrusive testing was performed, nor should the site inspection be assumed to be anything other than for budget purposes.



## Terms and Definitions

<b>BTU</b>	British Thermal Unit (a standard unit of energy)
<b>DIA</b>	Diameter
<b>GSF</b>	Gross Square Feet (area)
<b>GSY</b>	Gross Square Yards (area)
<b>HP</b>	Horsepower
<b>LF</b>	Linear Feet (length)

**Effective Age:** The difference between Useful Life and Remaining Useful Life. Note that this is not necessarily equivalent to the chronological age of the component.

**Fully Funded Balance (FFB):** The Reserve Balance that is in direct proportion to the fraction of life “used up” of the current Repair or Replacement cost. This benchmark balance represents the value of the deterioration of the Reserve Components. This number is calculated for each component, then summed together for an association total.

$$\text{FFB} = (\text{Current Cost} \times \text{Effective Age}) / \text{Useful Life}$$

**Inflation:** Cost factors are adjusted for inflation at the rate defined in the Executive Summary and compounded annually. These increasing costs can be seen as you follow the recurring cycles of a component on Table 5.

**Interest:** Interest earnings on Reserve Funds are calculated using the average balance for the year (taking into account income and expenses through the year) and compounded monthly using the rate defined in the Executive Summary. Annual interest earning assumption appears in the Executive Summary, page ii.

**Percent Funded:** The ratio, at a particular point in time (typically the beginning of the Fiscal Year), of the actual (or projected) Reserve Balance to the Fully Funded Balance, expressed as a percentage.

**Remaining Useful Life:** The estimated time, in years, that a common area component can be expected to continue to serve its intended function.

**Useful Life:** The estimated time, in years, that a common area component can be expected to serve its intended function.

## Photographic Inventory Appendix